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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/734,098

12/11/2003

Paul R. McHugh

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PERKINS COIE LLP

P.O. BOX 1247

PATENT-SEA

SEATTLE, WA 98111-1247

EXAMINER

WILKINS III, HARRY D

ART UNIT

PAPER NUMBER

1742

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/23/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/734,098

Applicant(s)

MCHUGH ET AL.

Examiner

Harry D. Wilkins, III

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 9/8/05, 5/12/06, 10/17/06.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I (claims 1-47) in the reply filed on 17 October 2006 is acknowledged.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1- 47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Each of the independent claims relates a vessel to a workpiece support, such that the workpiece support is positioned "at least proximate" to the vessel, but further states that the workpiece support was "positioned to carry a microfeature workpiece at the process location of the vessel". "At least proximate" is not clearly defined by the specification and it is unclear what this limitation actually means. The relationship in arrangement between the workpiece support and the vessel is already sufficiently defined by the requirement that the workpiece support be positioned "to carry a microfeature workpiece at the process location of the vessel", such that the workpiece support must have a portion, which holds the workpiece, that resides within or abuts the vessel at the process location.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 4, 15, 20, 22, 25, 40 and 43 are rejected under 35 U.S.C. 102(b) as being anticipated by Powers et al (US 3,652,442).

Powers et al anticipate the invention as claimed. Powers et al teach (see figures 1 and 2) a system for processing workpieces (14) including a vessel (10) configured to carry a processing fluid and having a generally planar process location, a workpiece support to hold the workpiece at the process location, a paddle “chamber” within the vessel having an “opening” at the process location and a paddle device (34) having at least one paddle positioned close to the process location, the paddle extending a distance away from the process location and movable along a generally linear axis to agitate processing fluid at the process location.

Regarding claim 4, the sidewalls of the vessel double as sidewalls of the paddle “chamber” to partially enclose the paddle device.

Regarding claim 15, the paddle device is movable relative to the workpiece along a linear path.

Regarding claims 20 and 22, the paddle of Powers et al meets the claimed shape limitations.

Regarding claim 25, Powers et al teach an electrode (26) in fluid communication with the process location and that the workpiece support included a second electrode electrically coupled to the workpiece.

Regarding claim 40, the paddle (34) of Powers et al was at least partially transmissive to the processing fluid through the area between the two blades (35) of the paddle.

Regarding claim 43, Powers et al teach (see col. 5, lines 2-4) that the paddle was fashioned from non-conductive material.

7. Claims 1, 4, 15, 20, 22, 25, 27 and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Andricacos et al (US 5,516,412).

Andricacos et al anticipate the invention as claimed. Andricacos et al teach (see figures 1-4) a system for processing workpieces (14) including a vessel (42) configured to carry a processing fluid and having a generally planar process location, a workpiece support to hold the workpiece at the process location, a paddle "chamber" within the vessel having an "opening" at the process location and a paddle device (28) having at least one paddle positioned close to the process location, the paddle extending a distance away from the process location and movable along a generally linear axis to agitate processing fluid at the process location.

Regarding claim 4, the sidewalls of the vessel double as sidewalls of the paddle "chamber" to partially enclose the paddle device.

Regarding claim 15, the paddle device is movable relative to the workpiece along a linear path.

Regarding claims 20 and 22, the paddle of Andricacos et al meets the claimed shape limitations.

Regarding claim 25, Andricacos et al teach an electrode (22) in fluid communication with the process location and that the workpiece support included a second electrode electrically coupled to the workpiece.

Regarding claim 27, Andricacos et al teach (see figures 2 and 4 and col. 4, line 49 to col. 5, line 49) using a controller operatively coupled to the paddle device configured to move the paddle along a generally linear axis by a distance less than the width of the vessel.

Regarding claim 40, the paddle (28) of Andricacos et al was at least partially transmissive to the processing fluid through the area (30) between the two blades of the paddle.

8. Claims 1, 4, 12, 15, 17-20, 22, 24-26 and 40 are rejected under 35 U.S.C. 102(e) as being anticipated by Browne et al (US 6,955,747).

Browne et al anticipate the invention as claimed. Browne et al teach (see figures 3 and 4) a system (300) for processing workpieces (310) including a vessel (304) configured to carry a processing fluid and having a generally planar process location, a workpiece support to hold the workpiece at the process location, a paddle "chamber" within the vessel having an "opening" at the process location and a paddle device (316) having at least one paddle positioned close to the process location, the paddle

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extending a distance away from the process location and movable along a generally linear axis to agitate processing fluid at the process location.

Regarding claim 4, the sidewalls of the vessel double as sidewalls of the paddle "chamber" to partially enclose the paddle device.

Regarding claim 12, Browne et al teach (see figure 4) including a magnet positioned proximate to the process location to orient material deposited at the process location.

Regarding claim 15, the paddle device is movable relative to the workpiece along a linear path.

Regarding claims 17-19, Browne et al teach (see col. 6, lines 23-25) that the paddle device included multiple paddles, and that they were coupled together to move as a single unit. The paddles included surface inclined at acute angles to the process location plane.

Regarding claims 20 and 22, the paddle of Browne et al meets the claimed shape limitations.

Regarding claim 24, Browne et al teach (see col. 6, lines 23-25) that the paddle device included multiple paddles,

Regarding claim 25, Browne et al teach an electrode (312) in fluid communication with the process location and that the workpiece support included a second electrode electrically coupled to the workpiece.

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Regarding claim 26, Browne et al teach (see figure 4) including a magnet positioned proximate to the process location to orient material deposited at the process location.

Regarding claim 40, the paddle (316) of Browne et al was at least partially transmissive to the processing fluid through the area between the two blades (402) of the paddle.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2-3, 5-10, 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Powers et al (US 3,652,442).

With respect to the claimed ratios of "first distance" and "second distance", the scale of the system of Powers et al are considered to result effective. Further, as per MPEP 2144.04.IV.A., changes in such scales are considered *prima facie* obvious absent a showing of unexpected results based upon the claimed sizes/ratios.

Regarding claims 21 and 23, although Powers et al teach using a triangular shaped cross-section for the paddle, changes in shape have been held to be obvious absent a showing that the new shape provided a significantly different result. See MPEP 2144.04.IV.B.

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11. Claims 2-3, 5-10, 21, 23, 28 and 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andricacos et al (US 5,516,412).

With respect to the claimed ratios of "first distance" and "second distance", the scale of the system of Andricacos et al are considered to result effective. Further, as per MPEP 2144.04.IV.A., changes in such scales are considered *prima facie* obvious absent a showing of unexpected results based upon the claimed sizes/ratios.

Regarding claims 21 and 23, although Andricacos et al teach using a triangular shaped cross-section for the paddle, changes in shape have been held to be obvious absent a showing that the new shape provided a significantly different result. See MPEP 2144.04.IV.B.

Regarding claim 28, it would have been within the expected skill of a routineer in the art to have optimized the rate of acceleration of the paddle to maintain the constant velocity over as large a portion as possible.

Regarding claims 42 and 43, it would have been obvious to one of ordinary skill in the art to have made the paddle from a material resistant to the corrosive electroplating liquid environment, such as a corrosion resistant metal, e.g.-nickel, or a corrosion resistant plastic.

12. Claims 2-3, 5-10, 21, 23 and 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Browne et al (US 6,955,747).

With respect to the claimed ratios of "first distance" and "second distance", the scale of the system of Browne et al are considered to result effective. Further, as per

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MPEP 2144.04.IV.A., changes in such scales are considered *prima facie* obvious absent a showing of unexpected results based upon the claimed sizes/ratios.

Regarding claims 21 and 23, although Browne et al teach using a triangular shaped cross-section for the paddle, changes in shape have been held to be obvious absent a showing that the new shape provided a significantly different result. See MPEP 2144.04.IV.B.

Regarding claims 42 and 43, it would have been obvious to one of ordinary skill in the art to have made the paddle from a material resistant to the corrosive electroplating liquid environment, such as a corrosion resistant metal, e.g.-nickel, or a corrosion resistant plastic.

13. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over any of Powers et al (US 3, 652,442), Andricacos et al (US 5,516,412) or Browne et al (US 6,955,747) as applied to claim 1 above, and further in view of Broadbent (US 6,027,631).

Each of Powers et al, Andricacos et al and Browne et al relate to either face-up electroplating or vertical electroplating.

However, face-down electroplating is a well-known alternative to these orientations, as shown by Broadbent.

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the paddle devices of any of Powers et al, Andricacos et al and Browne et al with the face-down orientation shown by Broadbent.

Broadbent teaches that in face-down electroplating the workpiece holder was conventionally made rotatable such that the workpiece could be rotated, as was known by one of ordinary skill in the art to improve the uniformity of the electroplated layer.

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated a rotatable workpiece holder into the system of any of Powers et al, Andricacos et al and Browne et al in view of Broadbent for the purpose of increasing the uniformity of the electroplated layer.

Double Patenting

14. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

15. Claims 1-10, 12, 15-28, 40, 42 and 43 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-28 of copending Application No. 10/734,100. Although the conflicting claims are not

identical, they are not patentably distinct from each other because it appears that each and every limitation of the present claims also appears within the claims of the '100 application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

16. Claims 1-10, 12, 15-28, 40, 42 and 43 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-47 of copending Application No. 10/733,807. Although the conflicting claims are not identical, they are not patentably distinct from each other because it appears that each and every limitation of the present claims also appears within the claims of the '807 application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Allowable Subject Matter

17. Claims 30-33, 34-35, 36-39 and 45-47 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

18. Claims 11, 13, 14, 29, 41 and 44 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

19. The following is a statement of reasons for the indication of allowable subject matter:

- a. Claim 11 - the prior art does not teach or suggest forming a separate chamber within the vessel including a semi-solid (i.e.-porous) base portion for partially (or fully) enclosing the paddle;
- b. Claim 13 - the prior art does not teach or suggest a tilted (inclined) base portion;
- c. Claim 14 - the prior art does not teach or suggest a fluid inlet within a sidewall portion of the paddle chamber.
- d. Claims 29, 30 - the prior art does not teach or suggest controlling the motion of the paddle such that the stroke of a relative motion between the paddle and the workpiece support changed between at least two successive reciprocations;
- e. Claim 34 - the prior art does not teach or suggest using a plurality of non-parallel paddles;
- f. Claim 36 - the prior art does not teach or suggest using multiple paddles that differ in shape and/or size from each other;
- g. Claim 41 - the prior art teaches making the paddle from solid (non-porous) material, and provides no motivation to make the paddle from a porous material;
- h. Claim 44 - the prior art does not teach or suggest forming holes (highly flow-restrictive apertures) within the paddle; and,
- i. Claim 45 - the prior art does not teach or suggest using a paddle which changes shape and/or size across its length

Conclusion


20. The art made of record and not relied upon is considered pertinent to applicant's disclosure. Keigler et al (US 2005/0167275) teach the limitation of controlling the motion of a paddle in an electroplating process such that a stroke of the relative motion changed between at least two successive reciprocations. However, the Keigler et al publication does not qualify as prior art under 35 USC 102 since the present application finds support in provisional applications 60/484,603 and 60/484,604 filed on 1 July 2003.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Harry D Wilkins, III
Primary Examiner
Art Unit 1742

hdw